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THE JOURNAL OF PHILOSOPHY

THE STATUS OF FACTS IN ECONOMIC THOUGHT

THE two most characteristic features of the scientific method in its highest development are (*a*) its interest in broad generalization and (*b*) its recognition that facts are sovereign. Science is not simply interested in isolated facts: it seeks to discover the relationship of facts, one to another. But however far he may soar in generalizing these relationships, the scientist always returns to earth and puts his generalizations to the test of facts.

> This new tinge to modern minds is a vehement and passionate interest in the relation of general principles to irreducible and stubborn facts. All the world over and at all times there have been practical men, absorbed in "irreducible and stubborn facts": all the world over and at all times there have been men of philosophic temperament who have been absorbed in the weaving of general principles. It is this union of passionate interest in the detailed facts with equal devotion to abstract generalization which forms the novelty in our present society.[1]

The union of abstract generalization with detailed facts has seldom been accomplished in economics. We have theorists and we have statisticians and economic historians, while the connection between the two is vague and tenuous. Even when the same person does both theoretical work and detailed historical or statistical investigations, the two are usually not systematically related. These assertions would probably be denied by most economists. I shall try to support them by consideration of the status of facts in economic thought. It is my belief that until the intimate and exact relationship between generalization and fact is recognized by economists, we will continue in the future as in the past to have swings of the pendulum from "pure theory" to "fact-grubbing" —from the Ricardians to the Historical School, from the Austrians to the Institutionalists, and then back to the modern students of monopolistic competition.

Economic theorists usually do a good job in deducing the consequences of their generalizations. But the task of verification, of comparing these consequences with the actual facts, is not understood very well and is not very satisfactorily handled as a result. The charge can be put more bluntly: *most economic theorists*

[1] Alfred North Whitehead, *Science and the Modern World*, New York, Macmillan Co., 1947, pp. 3–4.

have not yet learned to respect facts. The serious nature of such an accusation should not be overlooked. Indeed, probably no more serious charge can be made against a scientist than that he does not give to facts their due weight. It is quite true that most economists talk about the necessity of verification. But unfortunately they very often are simply paying lip-service to the supremacy of facts. It is with economists as with everyone else: their actions speak louder than their words. In practice, they have developed many devices by which they avoid coming up against "irreducible and stubborn facts."

Let us examine some of these devices.

(1) *The Economics of Self-Evidence.* There is a view that the conclusions of economic theory do not have to be verified, because they are deduced from assumptions which are intuitively or self-evidently true. This contention is scarcely worth serious consideration. In the first place, the idea that there are self-evident truths ought by now to be completely discredited, in light of the many ideas which people considered at one time to be beyond doubt but which later turned out to be false. Secondly, those who use this approach claim that most of the conclusions of economics can be obtained from a very few main assumptions, i.e., that only a few self-evident principles (and these utterly beyond question) are needed in economic theory. But it simply is not true that all the results of economics can be derived from a very small number of generalizations.

> The abstract economists exaggerate the possibility of obtaining a vast deal of knowledge from a system of deductions derived from an initial set of four or five propositions. . . . The possibility of drawing out new knowledge in an endless stream from a given set of initial propositions, as a magician draws endless ribands of paper from an empty hat, is a purely fictitious one.[2]

Robbins claims that the two main postulates of economics are "simple and indisputable facts of experience." These propositions, which "only have to be stated to be recognized as obvious," are (1) "that individuals can arrange their preferences in an order, and in fact do so," and (2) that there is more than one factor of production.[3] Now even if these propositions were self-evidently true (and they are not), it is ridiculous to suppose that a great deal of knowledge could be obtained from them alone. Robbins himself admits that many "subsidiary" postulates are necessary in application of these propositions—as to whether there

[2] J. Viner, "Some Problems of Logical Method in Political Economy," *Journal of Political Economy*, Vol. XXV (1917), pp. 245–246.

[3] Lionel Robbins, *An Essay on the Nature and Significance of Economic Science*, 2nd ed., London, Macmillan and Co., 1940, pp. 75–79.

is competition or monopoly, as to the knowledge possessed by individuals in the market, as to the legal framework of the market, etc. All these assumptions, and one can name many more than Robbins chose to name, are far from self-evidently true. The conclusions of economics, therefore, could not be deduced from a very small number of propositions, even if it were so that these were self-evidently true; and to believe in self-evident truths today is rather anachronistic. The view that the conclusions of economic theorists do not need to be verified because of the self-evident nature of their premises is simply untenable.

(2) *The Method of Approximations.* A view more worthy of serious consideration is the idea that economic laws are only "approximations" to reality. The most general cases are "first approximations," and the laws in these cases are to be gradually modified until later approximations fit individual cases. For example, the first approximation is usually perfect competition, which assumes a maximizing individual, mobility of factors, many buyers and sellers, a high amount of (if not perfect) knowledge, etc. These assumptions are supposed to be gradually modified until they correspond to the world as we know it. In the method of approximations the rôle of induction is simply to study the actual facts in order to see under what circumstances a given approximation is applicable. This appears to be a very plausible procedure, but actually it is very dangerous. For this "method of approximations" enables the economist to escape putting his generalizations to the test of facts. In practice, all that "verification" with this method amounts to is simply a vague "trying out" to see if a certain theory (approximation) fits a particular case. If it does not fit (if the facts are not as the theory predicts them to be), the theory is not thereby considered disproved: the economist simply concludes that it can not be applied in that case. No matter how many cases a critic can cite in which the conclusions and the facts do not coincide, the advocate of a given theory can always reply that the critic failed to understand where the theory is properly applicable. As for the *first* approximations, they are on even safer ground. No one is supposed even to *consider* testing them until they have been "modified." But if you modify a law before you test its consequences (by comparing them with the facts), you have tested only the modification, and the original law is still in the realm of the unverified. For example, suppose you have assumed as a first approximation that workers try to maximize their wages. Is this *hypothesis* ever tested by those who use it? No, because any modern economist, before he would think

of trying to verify it, would want to allow for the fact that workers often desire security, status, etc.

"But," the impatient theorist may reply, "why all this talk about verification? The first approximation is not intended to be verifiable. It is a way of simplifying the problem." We may ask, however, how one is to know that the simplified version bears any resemblance to the actual facts, when its propositions are not subject to verification? A law which is offered as a first approximation but not subjected to verification may not even *approximate* reality. An argument very similar to this claim of simplifying the problem is the argument that a first approximation deals with the strongest and most powerful forces at work. But again, how do we know that this is true, that is, that the factors considered by a given theorist *are* the basic ones? Until a theory is verified we have only its advocate's word to support his contention that the theory in fact does consider the most fundamental forces in the situation.

(3) *Ceteris Paribus and the Science of Tendencies.* The orthodox economist is likely to claim at this point that economic laws approximate reality, in that they describe *tendencies* operating in the real world. "Political Economy is a science of tendencies only, not of matters of fact, its object being to work out and ascertain the results of certain great forces, as if these alone operated, and nothing else exerted any modifying influence."[4] This approach, too, is a technique of evading facts. For whenever a critic points out that the facts do not agree with the expected consequences of a certain law, the theorist who supports the law calls attention to the fact that his generalization merely describes a tendency. The facts are not as expected because there are one or more opposing tendencies at work. (The opposing tendency is sometimes called a "disturbance.")

"But surely," it will be replied, "all laws assume that 'other things will remain equal'; all scientists either implicitly or explicitly introduce a *ceteris paribus* clause into their laws." This is quite true. However, the physical scientist either knows what the "other things" are and can measure them, or he knows that they are genuinely negligible, i.e., that they will not seriously disturb his predictions. When the physical scientist does find that his results are disturbed by unknown forces or by forces which, though known, are not yet measurable, he does not simply ascribe the results to "opposing tendencies," and label his generaliza-

[4] John Neville Keynes, *The Scope and Method of Political Economy*, 4th ed., London, Macmillan and Co., 1930, p. 16.

tions "laws of tendency." He settles down to discover what these other forces are and what their strength is.

The ideal or goal of the scientist is the attainment of universal propositions—propositions to which there are no exceptions. As research continues in a certain area, exceptions to what were previously considered to be universal laws are likely to appear. The scientist tries to explain them—with what are called *ad hoc* hypotheses. When a great many exceptions have to be explained by *ad hoc* hypotheses, some particularly able thinker may bring forth a new generalization, which explains the facts with fewer or with no *ad hoc* hypotheses. But under no circumstances can the scientist merely toss off contrary facts with the assertion that his law is only a tendency, or that there are "disturbing" forces at work.[5] The fact is king: it must be explained; preferably it should be brought under the general law, but if necessary it may have to be explained by an *ad hoc* hypothesis.

To make economics a science of tendencies, and to impound unknown or little-known forces in *ceteris paribus,* is certain to have bad consequences. It will prevent further study of these unknown forces. And, most important, such an approach stands in the way of testing conclusions by comparing them with the facts. For whenever someone objects to an assertion, claiming that it is belied by the facts, its advocates can appeal to all the "opposing tendencies" and "disturbing forces" which lie in the shadows.

(4) *Isolation of Forces.* Quite frequently the claim is made that the method of approximations, or economics conceived as a science of tendencies, is a method of studying forces in isolation. This is a very misleading use of the term "isolation." Let us see why. The goal of a scientist is to set up a closed system—an arrangement whereby he can study the phenomenon in which he is interested with relative certainty that this phenomenon is not influenced by unknown causes standing outside the system. The closed system is an ideal. There is always the possibility that something which is outside the system but which is causally related to the phenomenon under consideration has been overlooked.

Economists do not recognize the nature of the "ideally isolated system" toward which they must strive. They talk about studying the influence of certain forces in "isolation" when they know very well that the situation which they are considering is subject to the causal influence of forces outside their "system." For example, in studying the problem of the long-run supply of a

[5] To say that there is a disturbing force at work, is but to state a problem; the disturbing factor must be discovered.

commodity, economists supposedly consider the influence of changes in the number of firms, in isolation from the influence of changes in the technology of production. Changes in technology are supposed to be outside the system. (Some economists would describe these changes as "exogenous" factors.) But the economist has not really *isolated* here the influences, on supply, of changes in the number of plants from influences, on supply, of changes in technology, since both of them are influential in this respect. He has merely chosen to talk about the one and ignore the other.

It is quite true that in the social studies "the subject matter . . . is so 'complex' and intricately interwoven that the difficulty of instituting a relatively closed system (a difficulty which exists in physical science) is intensified."[6] That this difficulty exists, however, is no reason for pretending to have a closed system when you do not have one.

Other than the misleading nature of the term, the real objection to this pretended isolation is that it prevents appeal to the facts. That is, a theorist will claim that a certain force has been isolated, but when an assertion about this force is contested because it does not correspond with the facts, the theorist, however illogically, is likely to state that disturbing forces have impinged on the phenomenon. Many economists, when they claim they are dealing with certain forces in isolation, have in reality merely chosen to talk about some factors which are important while choosing not to deal with other factors which may be even more important; and of course they justify their choice by an appeal to *ceteris paribus,* laws of tendency, etc.

(5) *Verification and the Complexity of Social Phenomena.* Almost all attempts to evade the test of predicted consequences arise out of an awareness of the complexity of social phenomena. There are so many forces at work that it is very difficult to separate out the influence of any one of them enough to test for its existence and strength. And yet this is what must be done if we are to get reliable knowledge. When we completely understand this matter, it becomes very curious to observe that the argument that social phenomena are very complex is used in support of all the devices by which the task of verification is avoided. Because there are so many factors at work, it is said, we must rely on laws of tendency, lean heavily on *ceteris paribus,* and give up trying to get genuine predictions.

[6] John Dewey, *Logic, the Theory of Inquiry,* New York, Henry Holt and Co., 1938, p. 487.

The reason that all science must test its results by comparing them with the facts is that it is so easy to overlook forces which are at work, to underestimate the strength of factors which we do consider, or to consider factors as negligible which are not so. Consequently, when it is pointed out that there is a multitude of forces at work, far from being a justification for omitting the step of rigorous verification, it is all the more reason for insisting upon it. The more forces at work, the easier it is to overlook some of them or to underestimate their strength.

> When in every single instance a multitude, often an unknown multitude, of agencies, are clashing and combining, what security have we that in our computation *a priori* we have taken all these into our reckoning? How many must we not generally be ignorant of? Among those we know how probable that some have been overlooked. . . ?[7]

Mill here has clearly indicated the problem. Elsewhere he has suggested that verification is the way this difficulty is to be dealt with. "The discrepancy between our anticipations and the actual fact is often the only circumstance which would have drawn our attention to some important disturbing cause which we had overlooked."[8] Thus the extreme complexity of social phenomena, though it makes the task of verification more difficult, also makes it even more necessary than in the physical sciences.

The fact that the phenomena of economics (and the social studies in general) are more complex than that of the physical sciences means that they are essentially more difficult. It is generally recognized that a task of greater difficulty requires a person of greater responsibility to handle it. If these assertions are true, it follows that social scientists must refuse to use the great complexity of their subject-matter as an excuse for evading their responsibilities.

In light of the failure of economists to see the necessity of testing a hypothesis by comparing its consequences with the actual facts, I should like to quote a passage by J. B. Say, a passage which is remarkable in the clarity with which it sees the entire problem.

> It is, perhaps, a well founded objection to Mr. Ricardo, that he sometimes reasons upon abstract principles to which he gives too great a generalization. When once fixed in an hypothesis which can not be assailed, from its being founded upon observations not called in question, he pushes his reasonings to their remotest consequences, without comparing their results with those of actual experience. In this respect resembling a philosophical mechanician, who,

[7] John Stuart Mill, *System of Logic*, eighth ed., New York, Harper and Brothers, 1900, p. 329.

[8] J. S. Mill, *Essays on Some Unsettled Questions of Political Economy*, London, John W. Parker, 1844, p. 154.

from undoubted proofs drawn from the nature of the lever, would demonstrate the impossibility of the vaults daily executed by dancers on the stage. And how does this happen. The reasoning proceeds in a straight line; but a vital force, often unperceived, and always inappreciable, makes the facts differ very far from our calculations. From that instant nothing in the author's work is represented as it really occurs in nature. It is not sufficient to set out from the facts; they must be brought together, steadily pursued, and the consequences drawn from them constantly compared with the effects observed.[9]

(6) *The Physical Sciences: A Marked Contrast in the Respect accorded to Facts.* I have charged that in general economic theorists have not yet learned to respect facts, and I have discussed the many devices which are used in economics to escape the test of facts. Let me try to show even more clearly the difference between a science which possesses a true respect for facts, and an approach which only pays lip-service to the supremacy of facts.

The idea of a "working hypothesis" has received almost no recognition in economics. That a generalization when first put forth should be considered tentative and provisional—something to be worked with, tested, modified, and perhaps even rejected—is seldom really understood by economists. Though few of the generalizations in orthodox theory have been verified, their hypothetical nature is usually not recognized. Evidently the reason that economists do not use the idea of a working hypothesis is that they do not realize the necessity of verification.

In this matter the terminology commonly used in economics is significant. In preference to "hypotheses" and "postulates," economists generally start out with "assumptions." The word "hypothesis" has the connotation of something rather tentative and proximate, while the term "postulate" connotes something which is arbitrarily chosen. The economists' use of the latter term would almost cause one to believe that they select their initial propositions for their convenience in analysis rather than because they believe them to be true. The term "assumption" escapes both of these undesirable connotations (of undue tentativeness and undue arbitrariness). It leaves one with the impression that these are assertions which are reasonably and sensibly accepted by anyone starting a certain line of analysis. To walk the narrow path of apparent reasonableness, without on the one side wandering into fields where assertions ought to be verified (as seems to be required of "hypotheses") or on the other side chancing into areas of what appear to be purely arbitrary propositions (i.e.,

[9] *A Treatise on Political Economy*, 4th American ed., Philadelphia, John Grigg, 1830, p. xlvi. Note how clearly he sees the indispensable rôle of verification.

"postulates"), is a delicate task. Economists find the term "assumption" an invaluable support on this journey.

Additional evidence for the assertion that economic theorists do not respect facts lies in the observation that they generally use facts merely as illustrations. When facts *disagree* with their conclusions, they point out that their laws are only tendencies, that of course they are assuming that other things remain equal, etc. But when facts *are in agreement* with their generalizations, economists are quick to appeal to them as evidence and as verification of the generalizations which have been put forth.

> All too often "induction" necessarily breaks down into "practical examples which illustrate the line of thought," and thereby one is, often without knowing it, in the theoretical absolutism where one with "deductive" means states general laws, which afterwards are illustrated with selected examples. And in the latter rests the entire realism. The evidence is systematically selective.[10]

In science contrary instances are just as important as facts which support a hypothesis. For it is the instances which disagree with what our theory leads us to expect that force upon our attention the necessity of revising, modifying, or even discarding beliefs which are not true or only partially true.

To appeal to facts only when they are favorable and to ignore them when they are unfavorable is not to show respect for facts. Facts in this case are not hard, cold, stubborn, and implacable. Rather they are easy, gentle things which can be set aside at will simply by invoking laws of tendency, *ceteris paribus* clauses, etc.

In marked contrast to this approach is the attitude of many scientists who have had a religious devotion to the facts. When Kepler, for example, was studying the behavior of Mars, there developed a discrepancy of eight minutes between what his theory led him to expect and his actual observations. Because he refused to overlook this error (because he did not talk about tendencies, or bring in *ceteris paribus*), he was led to his discovery that the orbits of the planets are not circular, as Copernicus had supposed, but elliptical.

> For our part since divine goodness has given us in Tycho Brahe such a painstaking observer, from whose observations an error in these Ptolemaic cal-

[10] G. Myrdal, quoted by T. W. Hutchison, *The Significance and Basic Postulates of Economic Theory*, London, Macmillan and Co., 1938, p. 52 (my own translation). "Allzu oft muss die 'Induktion' dabei aber bei 'praktischen Beispielen zur Beleuchtung des Gedankenganges' stecken bleiben, und damit ist man, oft ohne es zu wissen, in dem theoretischen Absolutismus, wo man auf 'deduktiven' Wege allgemeine Gesetze konstatiert, die man nachher mit ausgewählten Beispielen illustriert. Und im letzteren liegt dann der ganze Realismus. Der Evidenz ist systematisch selektiv."

culations amounting to 8 minutes is revealed, it is fitting that we should gratefully recognize and use this gift of God. That is to say we should labour . . . finally to trace out the true nature of the celestial motions. . . . For if I had believed these 8 minutes in longitude to be negligible, I should already have sufficiently corrected the hypothesis. . . . But as that error cannot be neglected, these 8 minutes alone have shown the way to the complete reformation of astronomy; they have made the material for a great part of this work.[11]

Darwin was so afraid that he would overlook cases that disagreed with his generalizations that he not only sought contrary instances, but he immediately wrote down any exceptions which he discovered so that he would not forget them. "I have steadily endeavoured to keep my mind free so as to give up any hypothesis, however much beloved (and I cannot resist forming one on every subject), as soon as facts are shown to be opposed to it."[12] William James wrote, when finishing his *Principles of Psychology*, "I have to forge every sentence in the teeth of irreducible and stubborn facts."[13]

Little more needs to be said about these men. The contrast between the attitude of Kepler, Darwin, and James, expressed in these quotations, and the view of facts held in the field of economics is indeed very great.

(7) *Consequences of the Failure to Respect Facts.* What are the consequences in economics of this lack of respect for facts?

First of all it has contributed to the perpetuation of "schools" of thought. In the physical sciences the *fact* is the final arbiter of controversy. But when large numbers of economists do not recognize the sovereignty of facts, this court of final appeal is closed, and controversy continues. Moreover, the disputants themselves usually do not seem to see what is necessary for settlement of their disagreement. One man writes a paper advocating a certain theory. Another replies, stating that he thinks the assumptions of the theory are unrealistic. The first returns either with the assertion that the theory is only applicable in certain circumstances or that it must of course be modified before it can be applied to reality. Reply follows reply, rejoinder follows rejoinder—all to the incredible advantage of the paper industry of the country. The dispute remains unresolved, since neither person concerned sees the necessity of appeal to facts.

[11] Kepler, quoted in A. Wolf, *A History of Science, Technology, and Philosophy in the 16th and 17th Centuries*, London, George Allen and Unwin, 1935, p. 137.

[12] *The Life and Letters of Charles Darwin*, Vol. I, edited by Francis Darwin, New York, Appleton and Co., 1919, Chapter II, "Autobiography," p. 83.

[13] Quoted in Whitehead, *Science and the Modern World*, p. 3.

Graduate students write papers on the assumptions of classical economics or on the assumptions of modern economics. Everyone talks about assumptions but few people do anything about them. That is to say, the necessity of testing assumptions (hypotheses) by deducing their consequences and comparing these consequences with the facts is not recognized; neither is the necessity of discarding or modifying hypotheses which do not stand up under test clearly seen. There will be unresolvable controversies and divergent schools of thought in economics as long as assumptions are discussed in a vacuum, where appeal to fact is prevented by laws of tendency and by *ceteris paribus* clauses.

Most economists are concerned over the fact that untrained people often feel competent to write about the most difficult problems in economics. One reason sometimes given to account for this is that economic thought is phrased in the language of everyday usage. We do not, it is sometimes said, have a large enough technical vocabulary to frighten off the uninitiated. While this view may have some validity, I do not think that it is satisfactory as an explanation of so much writing on economic matters by inexperienced people. There are words of common usage in physics —space, time, force, velocity—and technical language in economics —marginal efficiency of capital, indifference curves, liquidity preference—and yet the untrained usually stay out of the former and often enter the latter field. A more adequate explanation of this situation is, I believe, simply that you can not go far in physics without bumping into cold, hard facts which will immediately expose your ignorance, whereas in economics you can conjecture on and on without ever being challenged to verify your assertions. The proof of competence in the natural sciences is the ability to produce facts in support of your propositions. In economics, as long as we accept the pass-words of "tendency" and *ceteris paribus,* we have lost the only weapon by which we might disarm the impostor. The mediocre person with little ability or training can use these phrases just as easily as can the person who knows what he is about. Economists who wish to develop standards of professional competence will have to insist that conformity with facts be made the ultimate criterion by which to judge their own work as well as the work of all others who write on economics.

One of the most important consequences of this lack of respect for facts in economics is the sharp split between "theoretical" and "factual" economics. The theorist usually takes little interest in verifying his own conjectures. This is supposed to be up to the statistician and economic historian. But the person who formu-

lates a generalization is the one who should have the most incentive to verify it. And this would be the actual situation in economics if it were recognized that until an assertion is verified it is merely a hypothesis. If most of the "laws" of the orthodox theorist were properly labeled as "hypotheses," these theorists would be inclined to go out and seek some evidence for them, modify them if necessary in dealing with contrary facts, and discard them in favor of better hypotheses if the facts do not bear them out.

The actual situation is much different. The theorist is not much inclined to verify his own theories. The statistician and historian do not have the same incentive to verify the theory as its advocate should have (and would have if the necessity of verification were recognized). The theory simply is not their "baby." Moreover, the statistician and historian are closer to the facts, so they probably quite often see the impossibility of verifying these theories. Indeed, "non-theoretical" economists are often really theorists in their own right [14] and are too busy with their own work to concern themselves with verifying the theories of the more abstract economists. They are simply theorizing closer to the facts—unfortunately often too close to the facts (that is, statisticians and economic historians frequently become "fact-grubbers"). This is an almost inevitable result of a sharp split between theoretical and factual economics. The theorists are inclined to lose sight of the facts, and the statisticians and historians are inclined to overlook the necessity of at least having broad generalizations in mind (even if they do not generalize themselves) in order to make the study of facts rewarding. The ideal is to combine wide vision with the willingness and ability to subject one's visions to the test of reality.

Finally, a very important consequence of this failure to respect facts is the loss to economics of the advantages of the self-corrective process inherent in the scientific method.

> General propositions can be established only by the method of repeated sampling. Consequently, the propositions which a science puts forward for study are either confirmed in all possible experiments or modified in accordance with the evidence. It is this self-corrective nature of the method which allows us to challenge any proposition, but which also assures us that the theories which science accepts are more profitable than any alternative theories.[15]

In economics a proposition which is not confirmed in all possible instances is not always modified in accordance with the evidence.

[14] Cf. Wesley C. Mitchell, "Quantitative Analysis in Economic Theory," *American Economic Review*, Vol. XV (1925), pp. 1–12.

[15] Morris R. Cohen and Ernest Nagel, *An Introduction to Logic and Scientific Method*, New York, Harcourt, Brace and Co., 1934, p. 396.

Rather, appeal is made to the *ceteris paribus* clause or to laws of tendency in order to handle contrary instances. The scientific method is a self-corrective process because every time facts are disclosed which go contrary to what our theories lead us to expect, the theories are modified and even discarded. But it is precisely this unwillingness to recognize the sovereignty of facts which is characteristic of traditional economic thinking; consequently, the advantages of the self-corrective process are lost to economics, and error can perpetuate itself indefinitely in the field.

WAYNE A. LEEMAN

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A LOGICAL DEFINITION OF VALUE[1]

THE thesis of the following remarks is that "good" is not an ethical but a logical term. It is obvious that *a good road, a good horse, a good gun,* or even *a good bookkeeper* are not "good" in an ethical sense. The word "good" is as ubiquitous as is the word "a." Just as "a" can be applied to any concrete term, giving it the extensional context of the class, so the word "good" can be applied to any concrete term; but instead of giving the term extension, "good" gives it intension. Whereas "a" gives the term the extensional context of the class, "good" gives it the intensional context of the class concept or universal. It indicates that the term has all the qualities the universal is supposed—or defined—to have: that the term has the fulness of its connotation. The phrase "a good . . ." thus gives the term ". . ." both the extensional context of the class and the intensional context of the universal.

As an approximation to our definition let us say that *anything is good (or valuable) if it is what or as it is supposed to be.*

This gives us two cases of goodness (or value), those signified by the word "what" and those signified by the word "as." Beginning with the first case, we say that "anything is good when it is *what* it is supposed to be." If something is supposed to be a plate then it is "a good plate" if (*a*) it is a plate and (*b*) it has all the attributes a plate is supposed to have. If someone is supposed to be a teacher, then he is "a good teacher" if (*a*) he is a teacher and (*b*) he has all the attributes a teacher is supposed to have. Generally speaking, anything is good if it is a member of a class—"plate," "teacher,"—and has all the attributes of the class,

[1] Read (with omissions) at the Forty-ninth Annual Meeting of the Western Division of the American Philosophical Association, Evanston, Illinois, May 3, 1951.

which means all the attributes the class is supposed to have, or all the attributes which the class name, or concept or universal, connotes. Here "anything," let us call it "x," is not supposed to be good in itself but in its function as *a* good *so-and-so*, namely, a good member of a certain class, say the class C. We shall call this kind of goodness *extensional* goodness, because x belongs to the extension of a certain concept; or *functional* goodness, because it refers to a function of x rather than to x itself. We may also call this kind of goodness *extrinsic* goodness because it refers to something which is outside of x, namely, the relation between x and either the class C of which x is a member or the concept "C" of which x is an instance. Thus, in asking *what* x is supposed to be we really ask *what kind of thing* x is supposed to be or to what class x is supposed to belong or what concept it is to exemplify. And in predicating goodness of the fact that x is what x is supposed to be we predicate goodness of the fact that x belongs to a certain class or exemplifies a certain concept, and has all the attributes of that class or concept. When goodness is thus predicated of a class membership we say that the member of the class is *a good member of the class*, or in terms of x's exemplification of the concept or participation in the universal, that x is "*a good C.*"[2] Thus the first case of our definition, "anything is good if it is what it is supposed to be," means "anything is a good member of a class if it is a member of the class and has all the attributes which members of the class are supposed to have." Or, "x is a good C if x is a member of the class C and has all the attributes of C." This presupposes, among other things, that a thing may be a member of a class without possessing *all* the attributes of the class. Thus, if man is, among other things, a rational biped, even a one-legged moron is a man.[3]

[2] We shall make no distinction from now on between x's membership in a class, exemplification of a concept, and participation in a universal, although in an elaborated axiology these distinctions are important.

[3] The logical implications and complications of this view are too many to be considered here. They all come down to this question: is the Law of Excluded Middle, according to which A is either b or not-b, a universal law of thought? The answer must be No, for it does not apply to most of ordinary, as against scientific, discourse. "A is a chair" does not necessarily mean "A either is a chair or is not a chair." There are infinite degrees of a thing's being a chair, from "a good chair" to "hardly a chair" and "not a chair" and it is with these degrees that non-scientific thought is primarily concerned. For logic to neglect this spectrum between b and not-b means to neglect most of ordinary thought and all of value thought. To produce a special class for each of these modifications of A means to follow the pattern of primitive languages with thousands of different names for one object, such as nomadic Arabic with its 5,744 names for "camel." The abstract development of a language may almost be measured by the degree to which the Law of Excluded Middle becomes inapplicable. In that very same degree the language develops value predicates.

When we come to the second case, "anything is good if it is *as* it is supposed to be," we are not thinking of a class to which x belongs but we think of x itself: "x is good if x is as x is supposed to be." The goodness here is not predicated of x's membership in a class but of x itself. We are not concerned with the question whether *x is a good so-and-so* but whether *x is good.* The latter may be interpreted as "x is a good X," *where* "X" signifies a class, the class whose only member is x, or the unit class of x. This kind of goodness we shall call *intensional* goodness, because what is good is the totality of all the attributes of X, or the intension of the unit class of x; or *individual* goodness because there is no other individual x exactly like this x with all these attributes; or we may call it *intrinsic* goodness, because the goodness inheres in x itself and not in x's membership in a class other than X. In this case "good" is predicated of x, and our definition "x is good if x is as x is supposed to be" means "x is good if x has all the attributes of X," where "X" stands for "x as x is supposed to be." If x is a person, then "x as x is supposed to be," or "X," may be interpreted as x's "self"; it depends on x, for it is up to x to be what x is supposed to be, as well as to suppose what X is to be. This self-reflective and self-directive part of a person is usually called the person's *conscience*. In the case of a person our definition may thus be formulated "x is a good person if x is as x's conscience demands" or "x is good if x follows his conscience," or in some similar fashion. If x is not a person the supposing is done by the person who defines the meaning of "x."

We thus have two kinds of goodness or value, extrinsic value and intrinsic value. Both are defined roughly by "anything is what and as it is supposed to be." For extrinsic value this means "x is a good C if x is a member of the class C and has all the attributes of C," and for intrinsic value it means "x is good if x has all the attributes of X," which latter, in the case of persons, means "x is a good person if x follows his conscience." Extrinsic value refers to a function of x, intrinsic value refers to x itself, or x's self, i.e., the integral totality of all of X's attributes. In the case of persons this integral totality is called "integrity," "character,"[4] or "personality." Intrinsic value for persons may thus

Value predicates are nothing but linguistic devices for filling the gap between the qualities of the particular and the definition of the universal. Where such a gap does not exist, as in scientific discourse (a circle either is round or is not a circle), value predicates are inapplicable.

[4] Etymologically, "integrity" refers to the totality of a person's attributes and "character" to the name of this totality. "Integrity" refers to the person as unit class of attributes, "character" to the person as name, symbol, or universal signifying these attributes.

be defined as the value of *personality*. The extrinsic value of a person, on the other hand, is his *function*, of which a person has an infinite number, such as teacher, commuter, Rotarian, father, customer, advertiser, etc. Indeed, every situation finds the person in a different function. All these functions are expressions, elaborations, and differentiations of the personality, whose functional value is evinced by the skill [5] in meeting and adjusting to the situation.

Intrinsic value thus precedes extrinsic value. A person in order to function must first be, namely, a person. His being a person and his functioning are not the same. A man may be a good person and a bad function, e.g., a good person and a bad lawyer, or a bad person and a good lawyer; he can be extrinsically good and intrinsically bad or extrinsically bad and intrinsically good or both extrinsically and intrinsically good or bad.[6] The *norm* for the extrinsic value is a *science*—a person to be a good lawyer must know the law, to be a good chemist must know chemistry, to be a good baker must know baking.[7] The norm for the intrinsic value is the person's *conscience*; to be "a good himself" he must first know himself, be a co-knower with himself of himself.[8] Since conscience is the norm of intrinsic value and science is the norm of extrinsic value, and intrinsic value precedes extrinsic value, conscience precedes science, particularly the science of the lawyer, statute law. This particular precedence of intrinsic over extrinsic value is guaranteed the protection of the state in the First Amendment of the American Constitution, as well as the laws concerning conscientious objectors and similar statutes. Where such guarantee does not exist it should be legally established; whenever the claims of conscience and science conflict, as, for example, in the making of an atomic bomb, it is conscience which ought to be free to follow its own course.

[5] The word "skill" etymologically means "difference." Cf. Swedish "skillnad" (difference), "skilja" (to separate), "skilsmässa" (divorce), etc. The word "person," on the other hand, meant originally function or rôle in a particular situation ("mask") and later one's cosmic rôle or one's rôle in the world at large, in the *totality* of individual situations and skills.

[6] For this reason we can see something "good" in an enemy and something "bad" in a friend. These values are always functional or extrinsic; what makes the person an enemy or a friend is his intrinsic value.

[7] Recently introduced as a four-year college course at Florida State University, leading to a degree in "baking science."

[8] The word "*connoisseur*" would be fitting had it not a hedonistic connotation. The word for conscience in all indo-germanic languages expresses the thought of "knowing together," e.g., German *Gewissen*, Swedish *samvete*, etc. The latter word is almost identical with the Sanskrit word.

Conscience is a particular case of intrinsic value, namely, the relation between the second and the third "x" in the definition of intrinsic value in cases where x is a person: "x is good if x is as x is supposed to be." The second "x" stands for x as x actually is, whereas the third "x" stands for x as x is supposed to be, that is, X. The former is the actual, the latter the ideal or potential x.[9] The first "x" combines the second and the third, for x is good if the actual x, "x" is as the ideal or potential x, "X." The relation between the actual and the ideal x is conscience. The actual x is a member of the unit class of x, for "x is good" is equivalent to "x is a good X," where "x" signifies the actual x and "X" the ideal x. The latter has the totality of all of X's attributes, which any actual x may or may not possess. The totality of all of X's attributes is unique, hence the ideal x is the unit class of the actual x. Uniqueness, we may say, is the intension of a unit class. A thing which is intrinsically valuable is "in a class by itself."

All intrinsic value, according to our formula, exhibits the dialectic between the actuality and the ideality of the thing valued, x, which in spite and because of this antinomy is one and unique. Where this dialectic is disregarded x appears as merely actual and momentary and nothing intrinsically valuable can be said of it—except in so far as actual momentariness is in itself valuable; but such attribution of value seems impossible since making momentary actuality valuable presupposes at least one other frame of reference than momentary actuality. But if such a frame of reference were supplied, momentary actuality would not be any more momentary actuality. Hence momentary actuality, as such, can not be valuable. It is axiologically vacuous. Such vacuous actuality is sometimes applied to persons. Their actual-ideal constitution is disregarded and the drive for momentary "satisfaction" is regarded as their essential "ethical" feature. The result of seeing persons as such flattened out, desiccated, atomized shadows is the "individual hedonic relativism" of Thrasymachus and Gardner Williams.[10] Its subjects are not persons but instances, and it leads, significantly, to the reduction of persons to instances: their liquidation whenever a "situation," that is, an instance so demands.[11]

[9] This relationship is elaborated in a different context in the author's article "The Moral Situation: A Field Theory of Ethics," this JOURNAL, Vol. XLV (1948), pp. 292–300.

[10] "Hedonism, Conflict, and Cruelty," this JOURNAL, Vol. XLVII (1950), pp. 649–656.

[11] Gardner Williams interprets this demand of the momentary into a demand of "divinity, God, our highest good," based on an apparently misunderstood

Both extrinsic and intrinsic value presuppose correct attribution of class attributes to a thing, or correct subsumption of a particular under a universal. I can judge whether x is a good lawyer only if I know both the particular function of x and the class attributes connoted by the term "lawyer." I can judge whether x is good only if I know the present properties of x and the potentialities of x as the class of those properties of which the present properties of x are special cases, namely, actualities. Correct subsumption or attribution is itself a value, namely an extrinsic value, i.e., the exercise of a function of judgment. This value is particularly important in jurisprudence. We can apply our definition of extrinsic value to the act of legal subsumption and say that a legal subsumption is good if (a) it is a subsumption, i.e., it sees a case in a factual and legal context, and (b) it has all the attributes of a subsumption, i.e., the frames of reference, the factual as well as the legal, are appropriate to the case. When extrinsic value—either of subsumption or of any other functional activity—conflicts in a given case with the intrinsic value of personality, the case must be decided in favor of the intrinsic value.[12]

Since extrinsic value is the correspondence of class and attributes in a specific case, extrinsic *disvalue* or *bad* is the non-correspondence of class and attributes. This non-correspondence in a particular case is *material badness*. For example, Jones is not a good lawyer if either (a) he is not a lawyer, or (b) he does not have the attributes of a lawyer, or (c) he neither is a lawyer nor has the attributes of a lawyer. Let us say that being a lawyer means taking the bar examination and that having all the attributes of a lawyer means to know the law. Then, if Jones has not taken the bar examination but knows the law, he is not a good *lawyer*, and if he has taken the bar examination but does not know the law he is not a *good* lawyer. In neither case is he *a good lawyer*. Neither, of course, is he a good lawyer if he has neither taken the bar examination nor knows the law. In all these cases we have a non-correspondence of class and attributes. In the

reference to Thomas Aquinas (*Summa Contra Gentiles*, Book III, Ch. 17, Pegis edition, Random House, 1945, Vol. II, p. 27). God is each thing's highest good for the reason that He is the common good of the world "since the good of all things depends on Him." This presupposes the total universal order, a notion which is exactly opposed to that of "hedonic individual relativism." Gardner Williams is guilty of a transposition of frames of reference (see below).

[12] For an application of this principle to legal decisions see the author's "Value Analysis of Legal Decisions," *Ohio State Law Journal*, Winter, 1951, and *Second Report of the Committee for Cooperative Research in Values*, Wayne University, Detroit, 1950, pp. 12 ff.

first case, (*a*) Jones does not belong to the class of lawyers but he has the attributes of the class, in the second case, (*b*) he has the attributes of the class but does not belong to it, and in the third case, (*c*) he neither belongs to the class nor does he have its attributes.

All these are cases of material badness as far as Jones's function of being a lawyer is concerned. It is not the proposition "Jones is a bad lawyer" which is bad, but the fact of Jones's being a lawyer which is bad. Another kind of badness is *formal badness*, or *transposition of frames of reference*. This badness does not lie in the subject-matter of the proposition but in the proposition itself (or, pragmatically interpreted, in the speaker). Thus, calling Jones a bad lawyer while actually he is a good lawyer or calling him a lawyer while actually he is a baker or giving him attributes which he does not possess or denying him attributes which he possesses, or calling his function more important than his person, all these would be transpositions of frames of reference. Transpositions of frames of reference are not identical with false propositions. All false propositions, it seems, are or manifest transpositions of frames of reference, but not all transpositions of frames of reference are false propositions. Transposition of frames of reference is a wider concept than logical falsehood. Most transpositions of frames of reference are transpositions of values contained in logically valid propositions. Such propositions may be called axiologically false (or fallacious or invalid) or *wrong* propositions.

We must thus distinguish between logical and axiological validity; logical validity depends on the rules of logic, axiological validity on the rules of axiology, the latter understood as the logic of the term "good." Transpositions are cases of formal rather than of material badness because the badness does not refer to the subject-matter of the proposition but to the proposition itself. Incorrect legal subsumptions are cases of formal badness. So is any kind of incorrect subsumption or attribution, whether it be a confusion of terms or of values, e.g., pronouncing values which are axiologically inferior—such as extrinsic values, say, of color of skin,—as superior to values which are axiologically superior—such as intrinsic values, say, of educating a person.

The definitions for intrinsic and extrinsic values can be applied to other entities than persons. The totality of formal rules concerning intrinsic, or intensional, and extrinsic, or extensional, values constitutes the logic of value or *axiology*.[13] The totality

[13] In distinction from other meanings of this term it may also be called *axiologic*.

of axiological rules applied to persons, things, thoughts, is *applied axiology*. Intensional axiology applied to persons results in the rules for persons as individuals and for the relationships between the actuality and ideality of persons. This would be equivalent to a science of formal ethics. Extensional axiology applied to persons results in the rules for, on the one hand, persons as functions and, on the other hand, the functions of persons. The former would be equivalent to a science of formal sociology, the latter to a science of formal psychology. Intensional axiology applied to things results in the rules for things as individuals and for the relationships between the actuality and ideality of things. Actual things would be seen as realizations of ideal prototypes. This would lead to a science of symbolism, consisting of metaphysics and esthetics, depending on whether the things concerned are natural or artificial things. Extensional axiology applied to things results in the rules for things as functions—good shoes, roads, horses, guns. The examination of such goodness, as measured by a standard, say gold, leads to the science of economics. Intensional axiology applied to thoughts results in the rules for thoughts as individuals and for the relationships between the actuality and ideality of thoughts. This would be the supplementary science to the metaphysics and esthetics of things, namely, the metaphysics and esthetics of thoughts. Extensional axiology applied to thoughts results in the rules for thoughts as functions; "x is a good thought" would mean that x has all the attributes of a thought—this would lead to a science of logic, formal or pragmatic, depending on the attributes and the definition of a thought.

Since the logic of the term "good" is what we call axiology, we must modify our initial sentence and say that our thesis is that "good" is not an ethical but an axiological term.

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BOOK NOTES

Wingless Pegasus. A Handbook for Critics. GEORGE BOAS. Baltimore, Maryland: The Johns Hopkins Press. 1950. x + 244 pp. $3.50.

This fine-grained and cultivated book shows, within its modest compass, more knowledge about the arts, more understanding of the arts, and a more humane concern for adequate appreciation of the arts than any other work of its type with which I am acquainted.

That so spirited and engaging a work exists at all is sufficient proof that esthetics in America is coming of age. I commend it most heartily both to the reflective common-reader, the practicing critic, and the harassed teacher who desires a text which is at once informative, readable, and wholly free from misleading and gratuitously self-denying critical ordinances.

The work is naturalistic and empirical in method, but not offensively so. It is wisely pluralistic in its conception of the "nature" of art and the purposes of critical evaluation. It respects the enjoyment of art as its only source of terminal or intrinsic value, but insists also upon the necessity for careful training, interpretation, and devoted attention to the art object itself, if all of its terminal values are to be realized. The facts of relativity are fully recognized without abjuring all standards whatever.

The author begins with a discussion of artistry and its major determinants, including novelty. He then proceeds to an analysis of values and the circumstances leading to and requiring their critical appraisal. His view, which he mistakenly ascribes to Perry, is that "value" means "satisfaction of interest." (I consider it a better definition than Perry's "object of interest.") His treatment of fallacies in the determination of values is very discerning and extremely important for anyone interested in the evaluation of works of art. He excoriates the views which identify the "right" value of a work of art with its "original" value, its "natural" value, the expert's evaluation, or its "universal" value. These may, of course, be relevant to the determination of an adequate evaluation, but they do not, as such, establish the value of a work of art. Value, for the appreciator, is a function of his own satisfied needs, not of the conformity of his taste with that of the creator of the work of art, or with the critical judgment of the expert, or with the universal acceptability of the work.

Three factors are involved in esthetic valuation: the artists, the work of art, and the spectator. Above all, they must not be confused. Many factors determine the creation of a work of art as well as its values. What it means to its creator is one thing; what it means to us, the spectators, is necessarily something else. Works of art are "multivalent" in function, satisfying a variety of instrumental and terminal interests. "Multivalence" is a useful word in discussing the plural dimensions and values of art.

The later chapters, which can not be summarized here, include illuminating discussions of rules in art, the concept of form, art and nature, approbation and liking, the hierarchy of values, critical standards, and, finally, the "ineffable." There are also two appendices containing essays entitled "Il Faut Etre de Son Temps"

and "The *Mona Lisa* in the History of Taste." These are models of what studies in the history of ideas can be. Not only are they historically informative, but also theoretically illuminating and, if I may say so, normatively wholesome.

I should like to twit Mr. Boas over his use of the editorial *we*. So portentous and official-sounding an appellation seems a trifle grotesque coming from the pen of so singularly unpretentious and personal a writer. Otherwise, everything is just as it should be.

H. D. A.

Plotinus' Search for the Good. JOSEPH KATZ. New York: King's Crown Press, Columbia University. 1950. ix + 106 pp. $2.50.

This essay won the Woodbridge prize for 1948. It contains a sober and well argued assessment of Plotinus' place and importance in the Hellenic tradition, including the "intellectualist trend" that led him to conceive of a transcendent existence of the One, and the alleged "mysticism" in his conception of the One or the Good, which Dr. Katz suspects to be rather an outcome of the prevailing Greek rationalism. The conventional label "Neoplatonism" is a product of modern scholarship in recognition of differences among the followers of Plato, but it is a misleading term, as Dr. Katz points out, since Plotinus explicitly rejects any claim to novelty in his doctrine, while Plato remained for him "the uncriticized master." The conception of levels of reality, which was to dominate medieval thought in the earlier periods, and the attitude of otherworldliness, here described as "the flight to the alone," are clearly and sometimes eloquently interpreted. Professor Lovejoy's celebrated account of the principle of plenitude in *The Great Chain of Being* helps the author to explain the double tendency that he finds in Plotinus' conception of the Good—"the identification of goodness with fullness, on the one hand, and with end or aim, on the other." The concluding chapter on Science, Magic, and Politics, with suggestive comments on Plotinus' contempt of society combined with his love of community, is tantalizing in its brevity.

D. S. M.

The Philosophy of Plotinus: Representative Books from the Enneads. Selected and translated with an introduction by JOSEPH KATZ. (Appleton-Century Philosophical Source Books.) New York: Appleton-Century-Crofts, Inc. 1950. xxxii + 158 pp. $1.75.

Courses in the history of philosophy are well supplied with inexpensive source-books on the classical period, but there have been

few on the Hellenistic period, and on Neo-Platonism there has been next to nothing. Since the majority of students in such courses will not be able to use the complete works of Plotinus, this translation of selected passages may prove a valuable addition to the assigned reading. The selections are representative and long enough to do justice to most of the arguments. They are divided into six parts entitled I. The Method of Philosophy, II. The Chain of Realities, III. Cosmic Order and Freedom, IV. Reason, Sense, and Emotion, V. Traditional Categories and Problems, and VI. The One as Source and Goal of Existence. The translation is indebted to, but not in any strict sense based upon or derived from, those of Mackenna and Guthrie into English, that of Bréhier into French, and that of Richard Harder into German. Mr. Katz has given us a graceful and eminently readable version of many difficult and important passages from the *Enneads*.

D. S. M.

Erasmus and Our Struggle for Peace. Part I. Erasmus: Herald of a United World. Part II. Peace Protests! by Erasmus of Rotterdam. Translated, with an Introduction and Notes, by José Chapiro. Boston: The Beacon Press. 1950. xv + 196 pp. $2.50

It is to be regretted that the author, whose scholarship is beyond question, misuses his knowledge for serving a romantic ideal. He turns Erasmus into a propaganda chief for the idea of One World which is almost identical with that of Wendell Willkie. He overlooks that Erasmus's world is the universe of Christian civilization. His *Consultatio de Bello Turcico* clearly shows the conditions of his pacifism. Furthermore, it is a completely misleading interpretation to present his attitude against Luther as motivated by his pacifism; this is the result of an inadmissible interpretation of Erasmus as *Libertin* and a "vagabond by nature." In view of the author's extremely wide reading, he should have been aware that Erasmus was as much a hater of the Jews as was Luther. This raises a psychological problem, to be sure, since Erasmus's own theological views were closest to Jewish monotheism. For this reason he became a favorite among the Marranos.

The place of Erasmus must remain that of a Christian humanist. From his early youth on, he desired to reconcile Prometheus and Christ, Socrates and Christ, *scientia* and *caritas*. His pacifism receives its true meaning only in Erasmus's struggle for the spirituali-

zation of the social and political patterns of conduct. It is Christian, not secular.

ALBERT SALOMON

THE NEW SCHOOL FOR SOCIAL RESEARCH
NEW YORK

What Are Our Values? W. T. STACE. (Montgomery Lectures on Contemporary Civilization, 1950.) Lincoln, Nebraska: University of Nebraska. 1950. 68 pp.

In three lectures entitled "Values in General," "Democratic Values," and "Why Do We Fail?" Professor Stace contends that "ultimately, to be human is to be rational, and to be rational is to be democratic." The primary cause of our American failure to realize these ideals is materialism in our scale of values, which "does not, when it is made an accusation against us, have anything to do with what is technically called materialism by writers on philosophy." Similarly the lecturer is reluctant "to make a charge of materialism against the professional exponents of pragmatism," yet its "vast popularity becomes evidence of a fundamental materialism in the minds of the American people." It is gratifying to see these popular misunderstandings recognized, but it would be even more so to have them clarified and dispelled. Professor Stace expects only war and disaster from our continuing worship of production, prosperity, and possession, refusing to believe that it is too late "to turn back along the road of materialism down which we long ago started."

H. A. L.

Can We Agree? A Scientist and a Philosopher Argue about Ethics. CHAUNCEY D. LEAKE and PATRICK ROMANELL. Austin, Texas: University of Texas Press. 1950. xiii + 110 pp.

The University of Texas Press has made a charming little volume out of this miscellany: a "retrospective introduction," an article by a biologist on scientific ethics, a criticism by a naturalistic metaphysician, a reply in defense of scientific ethics, a rejoinder in defense of "Promethean ethics," an exposition of the new naturalistic philosophy, a plea for science as the spirit of freedom and democracy, and, spattered throughout the booklet, a score of wise sayings. In this informal, rambling discussion the reader naturally loses interest in whether or not the authors "can agree," and he becomes engrossed in the portraits of two minds, which reflect entertaining individuals, but which also reflect two types of moralizing which are very prevalent today. The biologist, Dr. Leake, is sup-

posed to be a Darwinian, but agrees with his adversary that he is more accurately described as a positivist. Dr. Romanell, who is supposed to be a metaphysician, turns out to be a neo-naturalist. Thus the dialogue illustrates admirably the difference between a scientific naturalist and a naturalistic philosopher.

Dean Brogan, in his Preface, states the central issue more clearly than either of the protagonists: "The fundamental question is whether we may make reasonable judgments about other objectives that increased probability of survival by securing mutual harmony. The question is whether these additional objectives might also be 'natural.'" Dr. Leake has a very broad interpretation of "adaptation" and Dr. Romanell a fairly empirical conception of "normative." Accordingly, if both really want to agree, they might forget about biological vs. axiological ethics, and meet on the ground of a realistic *social* science, which both imply but neither defends. But the agreement is really less important than the disagreements, for each point of view is worth a distinctive type of analysis.

If there is a moral to this tale, it is well expressed by O. W. Holmes in the saying quoted on page 68 from his *The Poet at the Breakfast Table:* "Science is a first rate piece of furniture for a man's upper chamber, if he has common sense on the ground floor."

H. W. S.

Saggio sulla dialettica della realtà spirituale. GALLO GALLI. Terza edizione con nuove correzioni, rifacimenti ed aggiunte. Torino: Editore Gheroni. 1950. 255 pp.

Gallo Galli (born 1889) is that disciple of the late Bernardino Varisco whose main concern in philosophy has been to harmonize his master's objectivistic thesis regarding the spirituality of being with the radical subjectivism of Giovanni Gentile's "actual idealism." Consequently, the fundamental problem of the above work is the *superamento* of solipsism. The way out, according to the author, is not to reject solipsism by the usual appeal to common sense, but rather to make it toe the line of its own logic. Thus a solipsist to be really true to *himself* has to recognize the existence of *others*. For, without the experience of such "inner duality" (p. 83), the solipsist could not even, alas, assert his own existence with consistency, let alone deny the existence of others with alacrity. This *interiore dualità* within the "immediate subject" (I myself) expresses the "internal antinomy" of reality itself, the "mysterious reconciliation" of which is not accessible to finite man but only to God (pp. 101–103).

P. R.

Religion in Human Experience. An Introduction. JOHN R. EVERETT. New York: Henry Holt & Company, Inc. 1950. xvii + 556 pp. $5.00.

In this lucid study students of comparative religion will find much light on Max Muller's famous question "How is it that we have a religion?" Professor Everett, the new president of Hollins College, has written an attractively designed and illustrated volume to give laymen an historical background for a better understanding of the importance of religions in the formation of cultures. It points to a better appreciation of the ideals that are to be found in non-Christian countries, and to the Oriental origins of much in our own religious life. A glossary is provided for students, who will find an excellent textbook in this interesting work.

The author touches on many topics, but for the sake of clarity singles out the four dominant religious systems, Hinduism, Judaism, Buddhism, and Christianity, the first two being regarded as primarily non-missionary and essentially geographical, and the latter two as more universal and missionary in spirit. He believes religion is still a moving force in the world to-day and in a chapter on Religion and the Future writes:

> The great lesson of our religious past is that by studying the Bible, the Vedas, the Buddhist Sutras, the Torah, and the lives of saints and seers we can discover new spiritual truth. But these are source books for a beginning, a beginning which will lead us into an uncharted world which is the future.

Like many others, the author finds it difficult to define religion and would agree with Schleiermacher that it consists mainly in man's sense of dependence. After discussing the defining characteristics of religion and its relation to theology, philosophy, ethics, and culture, he passes on to the Rig-Veda. The sections on Brahmanic formalism, the Upanishads, and Jainism are brief but particularly successful. We find a very objective discussion of Hinduism which has been generally understood only in recent years, and on which a growing volume of literature has appeared. It was not so long ago that scholarly works on Hinduism were biased by preconceptions of Post-kantian metaphysics.

Students will profit from the excellent presentation of the early development of Christianity, which supplanted the Mystery Religions. We would like to see more space given the Mystery cults of the Hellenistic period, a topic often neglected in books of this type. However, this is not a work on ancient religion but a general study of the meaning of religion in human experience, and of the growth and promise of those ideas with which the meaning of Divinity is enriched.

BERNHARD MOLLENHAUER

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Out of my Later Years. ALBERT EINSTEIN. New York: Philosophical Library. 1950. viii + 282 pp. $4.75.

Reflections of a Physicist. PERCY WILLIAMS BRIDGMAN. New York: Philosophical Library. 1950. xii + 392 pp. $5.00.

These books are interesting to philosophical readers, but are not intended as additions to technical philosophy. Einstein is worried why malice and not kindliness is so prevalent in the world; Bridgman is worried what to do about the rule of mediocrity. To Bridgman I think we must reply that freedom of thought needs redefining and securing; but the rule of experts has been a dubious way out since Plato's day. Note Bridgman's rule of the intelligent does not include philosophers, for they have never been able to ask an intelligent question, let alone answer one—it is a scandal, there ought to be a law!

Bridgman says the supreme method which created modern science was the controlled experiment, but Einstein is interested in finding invariants under transformations. Neither one really means to confine scientific methods to the points they emphasize. Bridgman has spent most of his life teasing out chains of causation, by manipulating *things* that remained put when not being observed; but as a scientific theorist, let us not say philosopher, he leans towards a phenomenalism which says there are no *things*, but only, in Dingle's phrase, "patterned quality," and hardly a verifiable common world. Einstein's search for invariants seems to be something more than finding a language, for the alternatives lead to results verifiable by observation. Nor does it cover all of his views, not, for instance, the meaninglessness of simultaneity at a distance. This is not a search for invariants, and it is not really meaningless; we know perfectly well what he is talking about. It is a comment on certain difficulties of observation. Perhaps what is meant is that it will be forever unprofitable to talk about simultaneity at a distance. But we can remember, not so long ago, when scientists were saying it will "always be meaningless to ask" whether space is really Euclidean; all that can be asked is which geometry is most convenient. This particular era of eternal meaninglessness came to a sudden end when the eclipse expeditions of 1919 gave an observational answer to the unaskable question.

H. T. C.

NEW BOOKS AND CURRENT JOURNALS

Prabodh Chandra Bagchi: India and China. A Thousand Years of Cultural Relations. Second Edition, Revised and Enlarged. New York: Philosophical Library. 1951. 234 pp. $4.50.

George Boole: An Investigation of the Laws of Thought on which are founded the Mathematical Theories of Logic and Probabilities. First American printing of the 1854 edition with all corrections made within the text. New York: Dover Publications, Inc. 1951. xviii + 424 pp. $4.50.

Max Hamburger; Morals and Law: The Growth of Aristotle's Legal Theory. New Haven: Yale University Press. London: Geoffrey Cumberlege. Oxford University Press. 1951. xxii + 191 pp. $3.75.

Clarence Irving Lewis and Cooper Harold Langford: Symbolic Logic. Unabridged and unaltered reprint of the first edition by special arrangement with Appleton-Century-Crofts. New York: Dover Publications, Inc. 1951. viii + 504 pp. $4.50.

Frederick Mayer: A History of American Thought. An Introduction. Dubuque, Iowa: William C. Brown Company. 1951. x + 399 pp. $4.00.

Paul Siwek: The Philosophy of Evil. New York: The Ronald Press Company. 1951. ix + 226 pp. $3.50.

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